The Identification of the Vector Species of Iris Yellow Spot Tospovirus Occurring on Onion in Brazil. Tatsuya Nagata and Ana Carla L. Almeida, EMBRAPA-Hortaliças, Cx. Postal 218, Brasília, DF, 70359-970, Brazil; Renato de O. Resende, Dept. Biologia Celular, Univ. Brasília, 70970-000, Brazil; and Antonio C. de Ávila, EMBRAPA-Hortaliças, Cx. Postal 218, Brasília, DF, 70359-970, Brazil. Plant Dis. 83:399, 1999; published on-line as D-1999-0205-03N, 1999. Accepted for publication 17 December 1998.

In Brazil, tospoviruses have been reported in several horticultural and ornamental plants. In the northeast region of Brazil, a tospovirus has emerged as a devastating virus on onion cultures. Based on serology and the sequence of nucleocapsid (N) protein gene, this pathogen was identified as a strain of iris yellow spot tospovirus (IYSV) (1). This virus was first identified on iris and leek in The Netherlands and later on onion in Israel. For an effective integrated management of tospoviruses in Brazil, identification of IYSV vector is essential. Three thrips species, *Thrips tabaci, Frankliniella schultzei,* and *F. occidentalis,* that are major vegetable and floral crop pests in the Federal District, Brazil, were tested for their ability to transmit the virus by leaf disk assay (2). All thrips, up to 8 h old, were given an acquisition access period of 48 h at 25°C on IYSV-infected *Nicotiana benthamiana* plants in Tashiro-cages. Thrips were then reared on uninfected *Datura stramonium* detached leaves until the adult stage. These adults were transferred individually to microcentrifuge tubes containing an *N. benthamiana* leaf disk and were incubated for 48 h for virus inoculation. The leaf disks were then incubated 4 more days to allow development of the virus infection, and the presence of virus was evaluated by Dot–enzyme-linked immunosorbent assay (Dot-ELISA) with polyclonal antibodies against N protein of IYSV. Adult thrips were also used for direct inoculation to *N. benthamiana* plants, three thrips per plant. By the leaf disk assay, 45.8% (22 out of 48) of *T. tabaci* transmitted the virus, but *F. schultzei* ($n = 48$) and *F. occidentalis* ($n = 32$) did not transmit it. All plants (4 out of 4) directly inoculated by *T. tabaci* showed symptoms and infection by Dot-ELISA, while no plants inoculated with *F. schultzei* ($n = 5$) and *F. occidentalis* ($n = 3$) were positive, either by symptom observation or by Dot-ELISA. Only *T. tabaci* showed potential for a high capacity to transmit the IYSV onion isolate. In the field, considering the host preference of thrips, *T. tabaci* was considered the most important vector species of IYSV on onion.

References: (1) L. Pozzer et al. Plant Dis. (In press.) (2) I. Wijkamp and D. Peters. Phytopathology 83:986, 1993.

First Report of Bean Leafroll Luteovirus Infecting Pea in Italy. R. C. Larsen, USDA, ARS Prosser, WA 99350; and D. M. Webster, Seminus Vegetable Seeds, Inc., Twin Falls, ID 83301. E-mail: <rlarsen@tricity.wsu.edu> Plant Dis. 83:399, 1999; published on-line as D-1999-0205-02N, 1999. Accepted for publication 4 February 1999.

Approximately 5,000 ha of processing peas (*Pisum sativum* L) are cultivated annually in the Po River Valley of northern Italy. During the 1998 growing season, affected pea plants in this region were observed that exhibited mild chlorosis and mottling, leaf rolling, and stunting symptoms. High aphid populations and disease levels of nearly 100% were observed in susceptible varieties. Samples from affected fields were analyzed for the presence of bean leafroll virus (BLRV). Nonviruliferous pea aphids (*Acyrthosiphon pisum* Harris) received a 48-h acquisition access period on symptomatic leaves. Aphids were then transferred to Puget pea and Diana faba bean for a 72-h inoculation access period. Leaf samples were also macerated in 0.05 M potassium phosphate pH 7.4, and inoculated mechanically to pea, faba bean, chickpea (*Cicer arietinum* L.), *Chenopodium quinoa* Willd., and *C. amaranticolor* Coste & Reyn. Symptoms typical of those observed in the original field plants appeared 10 to 14 days after aphid transmissions in both pea and faba bean inoculated with pea aphids. No symptoms were observed in any of the hosts that were inoculated mechanically. Total nucleic acid extracts from the original pea samples, and from leaf tissue of pea and faba bean plants inoculated with aphids, served as templates in reverse-transcriptase polymerase chain reaction assays. Primers BLR-V157 and BLR-C546, which flanked a 400-bp fragment, were designed with available sequence data for the coat protein gene of BLRV (1). An amplification product of the expected size was generated from symptomatic plants but not from healthy controls. Sequence analysis of the cloned fragments revealed a 99% nucleic acid homology with the published sequence for BLRV and an isolate obtained from alfalfa in Washington State (R. Larsen, *unpublished*). This is the first report of BLRV in Italy.

Reference: (1) B. Brill et al. Nucleic Acids Res. 18:5544, 1990.

Powdery Mildew of Spearmint Caused by *Erysiphe orontii* in California. S. T. Koike, University of California Cooperative Extension, Salinas 93901; and G. S. Saenz, Department of Biology, University of New Mexico, Albuquerque 87131. Plant Dis. 83:399, 1999; published on-line as D-1999-0205-04N, 1999. Accepted for publication 25 January 1999.

In 1997 and 1998, the white fungal growth of a powdery mildew was observed on leaves and stems of both nursery and landscape spearmint (*Mentha spicata*) growing in coastal California (Monterey County). Mycelia were conspicuous, amphigenous, and epiphytic with indistinct to nipple-shaped appressoria. Conidiophore foot cells were cylindrical, straight, nonconstricted at the base, 61 to 92 µm × 11 to 14 µm in size, and were followed by 1 to 3 cells. Doliiform conidia, which were borne in chains of at least 3 to 5 conidia, measured 28 to 33 µm × 17 to 22 µm. Catenate conidia had sinuate edge lines. Conidia lacked fibrosin bodies. Upon germination, conidia produced germ tubes that were mostly apically inserted and ended in club-shaped appressoria, which fit Braun's *Cichoracearum*-type of conidial germination (1). Cleistothecia were not observed. Based on these features, the pathogen was identified as *Erysiphe orontii* Cast. (1). Pathogenicity was demonstrated by gently pressing diseased leaves onto leaves of potted spearmint, incubating plants in a humidity chamber for 48 h, then maintaining plants in a greenhouse. The powdery mildew that later developed was morphologically identical to the original isolates. While powdery mildew on spearmint has been observed previously in the state, this is the first report of the disease and first characterization of the pathogen for California.

Reference: (1) U. Braun. Beih. Nova Hedwigia 89:1, 1987.

Two New Hosts for Poinsettia Mosaic Virus. E. Floeistad and D. R. Blystad, The Norwegian Crop Research Institute, Plant Protection Centre, Fellesbygget, 1432 Aas Norway. Plant Dis. 83:399, 1999; published on-line as D-1999-0212-01N, 1999. Accepted for publication 11 February 1999.

Poinsettia mosaic virus (PnMV), a possible member of the genus *Tymovirus,* commonly infects the potted flower crop *Euphorbia pulcherrima* Willd. ex Klotzsch (1). Two new host species for this virus were identified during grafting experiments with *E. pulcherrima* and other *Euphorbia* spp. *E. cornastra* (Dressler) A. Radcliffe-Smith was reciprocally grafted with PnMV-positive *E. pulcherrima* cv. Eckespoint Lilo. PnMV was detected by double antibody sandwich–enzyme-linked immunosorbent assay (DAS-ELISA) in *E. cornastra* leaves directly below the graft union 4 weeks after grafting. Infection was not fully systemic 6 weeks after grafting when screened by DAS-ELISA with antibodies specific to PnMV (DSMZ, Braunschweig, Germany). The symptomless infection in *E. cornastra* persisted in cuttings from grafted plants after a 1-year observation period. *E. bubalina* Boiss. anatomy differs from that of *E. pulcherrima*. The two species did not produce a viable graft union. However, in an experiment with two attempted graftings, the *E. pulcherrima* scions remained turgid for 14 to 18 days. As a result of one grafting, the *E. bubalina* rootstock tested positive for PnMV. The virus induced a mild mosaic in *E. bubalina,* but no reduction in growth. To confirm virus presence in *E. cornastra* and *E. bubalina,* both DAS-ELISA and immunosorbent electron microscopy were used. Non-grafted controls remained PnMV negative. PnMV was re-isolated from both species by sap inoculation to *Nicotiana benthamiana*. *E. coulescens* Haw., *E. xylophyllides* Brogn. ex Lem., *E. marlothiana* N. E. Br., and *Ricinus communis* L. were not infected by PnMV after similar grafting attempts.

Reference: (1) A. A. Brunt et al., eds. 1996. Viruses of Plants. CAB Int., Wallingford, UK.

(*Disease Notes* continued on next page)